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potassium permanganate. This new method gives very good results and is particularly useful when large quantities of tubers are to be treated.—E. MEAD WILCOX.

Mitotic figures.—The nature of the forces which determine the achromatic figure is discussed by HARTOG,³⁰ and speculations as to processes occurring in the living cell are illustrated by ingenious experiments. Finely pulverized magnetite under the influence of magnets was made to take the form of the familiar mitotic figures. Photographs of these magnetic figures showing centrosomes, centrospheres, polar radiations, mantle fibers, and central spindles are given. Tripolar and quadripolar spindles were easily produced.—CHARLES J. CHAMBERLAIN.

The xerophytic character of gymnosperms.—Miss STOPES³¹ has brought together the data in reference to xerophily among the gymnosperms, and concludes "that the xerophytic characters of the Coniferales in many cases are not adaptations to xerophytic conditions in their own times, nor are they 'inherited' from the remote past as vestigial characters, but are the result of physiological limitations of the type of wood in this ancient and incompletely evolved group. In other words, their 'xerophytism' is not ecological, but phylogenetic."—J. M. C.

Embryogeny of Gnaphalium.—The occurrence of parthogenesis in *Antennaria* suggested to SCHILLER³² an examination of the nearly related genus *Gnaphalium*. A study of *G. supinum*, *G. silvaticum*, and *G. uliginosum* showed the normal formation of four megasporangia in the nucellus, a normal embryo sac with the rather extensive antipodal development characteristic of many Compositae, and the regular occurrence of double fertilization. When pollination is prevented no embryos are formed.—CHARLES J. CHAMBERLAIN.

Course of pollen tube in Sibbaldia.—According to ALBANESE,³³ the growth of the integument in *S. procumbens* continues until the micropyle is entirely closed. The pollen tube grows through the tissues of the integument and nucellus and thus reaches the embryo sac. This course of the pollen tube and also the described cases of chalazogamy are regarded not as primitive conditions but as variations from the porogamic type. *Sibbaldia* often shows several embryo sacs in a single nucellus.—CHARLES J. CHAMBERLAIN.

³⁰ HARTOG, MARCUS, The dual force of the dividing cell. Part I. The achromatic spindle figure illustrated by magnetic chains of force. Proc. Roy. Soc. London **76**: 548-675. *pls. 9-11.* 1905.

³¹ STOPES, M. C., The "xerophytic" character of the gymnosperms; is it an "ecological" adaptation? New Phytol. **6**:46-50. 1907.

³² SCHILLER, JOSEF, Untersuchungen über die Embryogenie in der Gattung *Gnaphalium*. Oesterr. Bot. Zeits. **57**:137-142. *pl. 5.* 1907.

³³ ALBANESE, NICOLÒ, Ein neuer Fall von Endotropismus des Pollenschlauches und abnormer Embryosacksentwicklung bei *Sibbaldia procumbens* L. Sitzber. Kais. Akad. Wiss. Wien **113**:1-24. *pls. 1-2.* 1904.